DHCD
Maryland Department of Housing and Community Development

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MEMORANDUM

DATE: November 18, 2011

TO: Industrialized/Modular Building Manufacturers
Maryland Approved Testing Facilities
All Local Building Officials

FROM: Ujjval Dave, P. E., Manager, Design Standards and Review
Maryland Codes Administration

RE: Industrialized/Modular Buildings - Minimum Design Loads.
2012 International Building Code (IBC) and 2012 International Residential Code (IRC) - Earthquake, Snow, Wind and Flood Loads.

Please be advised that this memorandum supersedes Maryland Codes Administration memorandum dated July 15, regarding the subject as referenced above.

Maryland Industrialized Buildings and Mobile Homes Regulation (COMAR 05.02.04.09) specifies that the industrialized buildings located in Maryland are required to be designed for safe design loads of the localities as determined by the local enforcement agencies. The Department has reviewed the applicable International Building and Residential Codes (IBC and IRC) 2012 Editions (**effective January 1, 2012**) concerning design load requirements. Unless other higher design loads are determined by the local enforcement agencies, the following applies:

(A) Earthquake Loads

For uniformity, the structures shall be designed to resist earthquake loads considering the following minimum value.

Seismic Design Category C
(Ref: IBC sections 1613, 1613.3.5; IRC sections R301.2.2, R301.2.2.1)

Notes:

(i) The above Seismic Design Category C is based on site class D (Ref: Chapter 20, ASCE 7-10; IBC section 1613.3.2) and Risk Categories I, II and III of buildings (Ref: IBC section 1604.5; Table 1604.5). When the building is to be located in site class E or F and/or building is assigned to Risk Category IV, Seismic Design Categories D, E, or F will be applicable and shall be designed in accordance with ASCE 7-10 or IBC section 1613.3.5 requirements.

(ii) The seismic requirements shall be applicable to **detached one-and two-family dwellings** located in Seismic Design Categories D_0, D_1 and D_2 except for those, that are located in Seismic Design Category C. (Ref: IRC section R301.2.2)

(iii) The seismic requirements shall be applicable to **town houses** located in Seismic Design Categories C, D_0, D_1, and D_2. (Ref: IRC section R301.2.2)

(iv) The seismic-force-resisting system of wood frame buildings that conform to the provisions of IBC section 2308 are **Not** required to be analyzed as specified in IBC section1613.1. (Ref: IBC section 1613.1, exception 2).

(v) Agricultural storage buildings intended only for incidental human occupancy are **exempt** from the requirements of design and construction to resist effects of earthquake motions (Ref: IBC section 1613.1, exception 3; ASCE 7-10)

(B) Snow Loads

The ground snow loads (P_g) to be used in determining the design snow loads for roofs are given in IBC, Figure 1608.2 and IRC, Figure R301.2 (5). However, the design roof load shall not be less than that determined by IBC section 1607.

For uniformity, minimum ground snow loads (P_g) are to be used for various localities within Maryland as follows:

Local enforcement Counties	Ground Snow loads (P_g)
Garrett and Allegany	55 psf
Washington, Frederick and Carroll	40 psf
Baltimore, Cecil, Harford, Howard, and Prince George's	35 psf
Montgomery	30 psf
All other	25 psf

Note: The design snow loads, for different types of roofs or conditions, shall be determined in accordance with IBC sections 1608.1, 1608.2 and 1608.3; IRC section R301.2.3 and by using the above corresponding values of ground snow loads (P_g).

(C) Wind Loads

(1) For Detached one-and two-family dwellings and townhouses

(a) Detached one- and two- family dwellings and town houses that are located in regions where wind design is **Not** required OR are **Not** located in the wind-borne debris regions, shall be designed to resist wind loads considering the following minimum values for uniformity: (Ref: IRC section R301.2.1)

Basic wind speed V_{mph} (nominal design 3 sec. gust, mph) [Ref: IRC Fig. R301.2 (4)A]

Counties	V_{mph}
Worcester	120
Somerset, Wicomico, Caroline, Dorchester, Talbot, and Saint Mary's counties	110
All other	90

Note: For exposure category C, refer to IBC section 1609.4.3.

(b) Detached one- and two- family dwellings and town houses that are located in regions where wind design is required OR that are located in the wind borne debris regions, shall be designed to resist wind loads as per IRC section R301.2.1.1.

(2) **For Buildings other than detached one-and two-family dwellings and townhouses**

Wind loads on every building **except** detached one- and two- family dwellings and town houses, shall be determined as per IBC section 1609.1.1.

The buildings **except** detached one-and two- family dwellings and town houses, shall be designed to resist wind loads considering the following minimum values for uniformity:

Ultimate Design Wind speeds $V_{ult.}$ (3 Second gust, mph) (Ref: IBC section 1609.3; Fig.1609A, Fig. 1609B, and Fig. 1609C)

Counties	$V_{ult.}$ (mph) for Risk Categories of Buildings		
	Category I	Category II	Categories III & IV
Worcester	120	130	140
Somerset, Wicomico, Caroline, Dorchester, Talbot, & St. Mary's	110	120	130
All other	105	115	120

Notes:

(i) The above Ultimate Design Wind Speeds are determined from IBC Fig. 1609C for risk category I buildings, Fig. 1609A for risk category II buildings, and Fig. 1609B for risk category III and IV buildings. For exposure category C, refer to IBC section 1609.4.3.

(ii) For determining risk categories of buildings, refer to IBC section 1604.5 and IBC Table 1604.5.

(D) Flood Loads

The design and construction of buildings located in flood hazard areas as established by the local enforcement agencies, including flood hazard areas subject to high velocity wave action, shall be designed and constructed in accordance with Chapter 5 of ASCE 7-10, and with ASCE 24-05.
(Ref: IBC, sections 1612.3& 1612.4; IRC section R322).